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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,113	07/11/2001	Katsuhiko Mochizuki	1232-01	7939

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EXAMINER

BUTLER, PATRICK

ART UNIT PAPER NUMBER

1732

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/889,113	Applicant(s) MOCHIZUKI ET AL.	
	Examiner Patrick Butler	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-19,21,22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-19,21,22 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 15 May 2006 has been entered.

Response to Amendment

The Applicant's Amendments, filed 03 August 2006, and Accompanying Remarks, filed 07 April 2006 and 03 August 2006, have been entered and have been carefully considered. No claims are new, Claim 15 is amended, Claims 1-9 and 12-14 are canceled, and Claims 15-19, 21, 22, and 24 pending.

Applicant indicates in Accompanying Arguments filed 03 August 2006 that Claims 1-9 and 12-14 are currently pending and have been canceled. However, Applicant's Amendments, filed 03 August 2006, are relied upon to indicate that Claims 1-9 and 12-14 are canceled and are not currently pending.

In view of Applicant's canceling of claims 1-9 and 12-14, the Examiner withdraws the previously set forth 35 U.S.C. 112, second paragraph, rejection as detailed in the Claim Rejections - 35 U.S.C. 112 section of the Office Action dated 14 November 2005.

Despite these advances, the invention as currently claimed is not found to be patentable for reasons herein below.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method of production of polyester yarn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15-19, 21, 22, and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (EP 1033422A1) in view of Rowan et al. (US Patent No. 4,851,172) and Toshio et al. (Japanese Patent Publication No. JP 52066769 A).

With respect to Claim 15, Fujimoto teaches a method of producing a poly(trimethylene terephthalate) fiber where the yarn is drawn, heat treated and then subjected to a relaxation treatment (a polymer substantially comprising polytrimethylene terephthalate) [0035]. The intrinsic viscosity of the polymer is 0.4 – 1.5, preferably 0.7 – 1.2 (intrinsic viscosity at least 0.7) [0016]. In the process, the multifilaments are extruded from a spinning machine (method of producing multifilament yarn; melt spun) [0035] and wound round a first roll heated at 30 – 80 °C and then a second heated roll at 100 to 160 °C (hauled-off via a first heated roll; second heated roll; continuously subjected to a heat-treatment at the second roll and a relaxation heat treatment; the second heated roll at 105-180 °C) [0038]. The multifilaments are wound around a first

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roll at a speed of 300-3,500 m/min (at a spinning rate of at least 2,000 m/min.) ([0036] and [0037]), drawn by a second roll at a ratio of 1.3 to 4 (without winding, subjected to drawing performed between the first heated roll and a second roll at low draw rate) [0038], wound round the second roll (by plural laps of the yarn) [0036], relaxed at a ratio of 0.8-0.999 (at a relaxation factor of 6-20%) [0040], mixed by methods such as interlacing before incorporating the yarn into fabric (after which it is continuously subjected to an interlacing treatment) [0045], and wound up on a winder (and wound up as a package) [0036].

Fujimoto fails to teach that the second heated roll used for the relaxation treatment has a surface roughness of 1.5 S – 8 S as required by claim 15.

Rowan is directed to a process for high speed, multi-end polyester yarn (Title). Rowan teaches manufacturing a multi-filament yarn by extruding, passing the filaments through drawing rolls, then through relaxing rolls, and then finally through a conventional air interlacing jet and then wound up (columns 2 and 3). The surface finish value for the rolls other than the first encountered roll can be between 35 and 120 microinches (0.89 – 3.0 micrometers) (column 4, lines 10 – 20). On page 14 of Applicant's Specification, Applicant indicates that 1.5S – 8S is equivalent to 0.8 – 6.3 micrometers as required by claims 15. Rowan suggests that the use of matte rollers produce a yarn with excellent mechanical qualities (column 4, lines 25 – 40).

Since Fujimoto lacks disclosure to specific details about the surface roughness of the second heated roller, it would have been necessary and thus obvious for one of ordinary skill in the art practicing the invention of Fujimoto to look to the prior art as

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exemplified by Rowan to provide the details of the relaxation roller's surface texture. As heated matte rollers having a temperature of at least 140 °C and a surface finish value of 0.89 – 3.0 micrometers which has a relaxation between 1 – 10 percent produces a yarn with excellent mechanical qualities (see Rowan, col. 4, lines 33-35), it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the heated matte finish relaxation rollers of Rowan in the invention of Fujimoto, motivated by the expectation of successfully practicing the invention of Fujimoto.

Fujimoto fails to expressly teach intermingling to a specific CF value.

Toshio teaches interlacing to a CF value of 10-100 with a synthetic multifilament fiber (Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Toshio's CF value with Fujimoto's process of making filaments and intermingling in order to manufacture a sizeless, twistless fabric (see Toshio) and to give a fabric thus obtained excellent softness, stretchability properties, and color developing properties (see Fujimoto [0044]).

Fujimoto in view of Rowan and Toshio teach that the breaking extension of the yarn is 40% or more principally because they teach the same claimed process.

With respect to Claim 16, Fujimoto teaches that the intrinsic viscosity of the polymer is 0.4 – 1.5, preferably 0.7 – 1.2 (intrinsic viscosity at least 0.8) [0016].

As to claim 17, Fujimoto teaches that multifilaments are extruded from a spinning machine at a temperature from 250 – 290 °C [0033], which is 22 – 62°C higher than the melt temperature.

As to claims 18, Fujimoto teaches that the fibers are drawn on the first roll heated at 30 – 80 °C having a peripheral speed of 300 to 3,500 m/min without winding thereon (>3,000 m/min.) [0035].

As to claim 19, Fujimoto teaches in Example 13 that the relaxation ratio is 0.88 (see Table 1 continued, Example 13), which is equivalent to a relaxation factor of 12%.

With respect to Claim 21, Rowan teaches that the surface finish value for the rolls can be between 35 and 120 microinches (0.89 – 3.0 micrometers) (column 4, lines 10 – 20). On page 14 of Applicant's Specification, Applicant indicates that 1.5S – 8S is equivalent to 0.8 – 6.3 micrometers as required by claims 21 (3.2 S – 6.3 S).

With respect to Claim 22, the draw temperature is -15 – 35 °C higher (10-50 °C higher) than the glass transition temperature of poly (trimethylene terephthalate), which is 45 °C.

As to claim 23, Fujimoto teaches that the fibers have the relaxation heat treatment performed on the second and third rolls at temperatures 100 – 160 °C and 120 – 150 °C respectively (page 8, lines 25 – 55).

As to claim 24, Fujimoto teaches that the draw ratio can be 2.20 in Example 13. The Examiner considers a draw ratio of 2.20 to be a "low" draw rate as required by Applicant. Fujimoto in view of Rowan and Toshio teach having strength from a stress/strain curve of at least 3cN/dtex and a breaking extension of at least 42% principally because they teach the same claimed process.

Response to Arguments

Applicant's arguments filed 07 April 2006 and 03 August 2006 have been fully considered but they are not persuasive.

Applicant argues with respect to the 35 USC 103 rejections. Applicant's arguments appear to be on the grounds that:

1) Fujimoto teaches away from having a hauling off a speed of 2000 m/min. with a relaxation factor of 6-20% principally because in such an instance, such as Comp. Ex. 5, it fails because it "could not be wound" (Fujimoto, Table 2).

2) The drawing speed is not the initial spinning speed. Thus, 1,600 m/min. initial drawing speed and 3,100 m/min. winding speed are not able to meet the limitation of > 2,000 m/min initial spinning speed or hauling off spinning rate.

3) Rowan's use of the matte rollers requires the heated roller to exceed the claimed temperature range. Alternatively, Rowan teaches failure at the claimed temperature range.

4) Fujimoto is silent to the benefits of CF values of 1-30.

The Applicant's arguments are addressed as follows:

1) As cited in the rejection, Fujimoto explicitly teaches speeds up to 3,500 m/min on the first roller's take-off and teaches the claimed relaxation.

1) Moreover, it appears that the reason Comparative Example 5 fails is due to the settings "outside the scope of the present invention", specifically because the first roller speed is 4,000 m/min (see Table 2, Comp. Ex. 5), which exceeds the invention's limitation of 3,500 m/min [0037], it causes the draw ratio to not be able to increase in the

drawing step [0037], or practically, "drastic yarn breakage and could not be wound" [0076] in the drawing step.

1 and 2) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., having a speed of at least 2,000 on the first roll encountered by the yarn) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As claimed, "a first roll" is hauling off the yarn as well as "a second roll" and a winder are hauling off the yarn given. No order is required by the claim between the first and second roller's interactions with the yarn; the first roller, second roller, and winder are contributing to the hauling off of the yarn. Moreover, there is no definition of record requiring "hauling off" speed to be solely limited to the first roll encountered by the yarn.

3) Rowan is relied upon for its teaching of matte finish rolls throughout the process, on both the cooler and hotter rollers ($100 < T < 237$) (see col. 4, lines 13-35). The temperature is not indicated as being necessary for a matte finish roll to be useful.

Moreover, Fujimoto provides proper temperatures for the second roller: 100 to 160 °C [0038].

4) Applicant's arguments with respect to claim 15's limitation of a CF value of 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Butler whose telephone number is (571) 272-8517. The examiner can normally be reached on Mo.-Th. 7:30 a.m. - 5 p.m. and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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ca
CHRISTINA JOHNSON
PRIMARY EXAMINER
9/12/06

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